What is claimed is:

1. A method of manufacturing a microelectromechanical device having a mechanical structure and a periphery area that are disposed over a substrate and in a chamber which is formed, at least in part, by a thin film encapsulation structure, the method comprising:

forming the mechanical structure;

forming the periphery area wherein the periphery area includes a plurality of gaps therein; and

sealing the chamber by depositing the thin film encapsulation structure.

2. The method of claim 1 wherein sealing the chamber by depositing the thin film encapsulation structure includes:

depositing a sacrificial layer around at least a portion of the mechanical structure and the periphery area;

depositing a first encapsulation layer over the sacrificial layer;

forming at least one vent through the first encapsulation layer to allow removal of at least a portion of the sacrificial layer;

removing at least a portion of the sacrificial layer from the mechanical structure and the periphery area; and

depositing a second encapsulation layer over or in the vent to seal the chamber.

3. The method of claim 2 wherein the substrate includes a sacrificial layer, and wherein removing at least a portion of the deposited sacrificial layer from the mechanical

structure and the periphery area further includes removing at least a portion of the sacrificial layer of the substrate that is disposed beneath the mechanical structure and the gaps of the periphery area.

4. The method of claim 2 wherein the second encapsulation layer is a semiconductor material which comprises of polycrystalline silicon, amorphous silicon, silicon carbide, silicon/germanium, germanium and/or gallium arsenide.

5. The method of claim 2 wherein the first encapsulation layer comprises a polycrystalline silicon, amorphous silicon, germanium, silicon/germanium and/or gallium arsenide.

6. The method of claim 1 wherein the mechanical structure includes a plurality of fixed electrodes that are disposed over the substrate and in the chamber, the method further comprises forming the fixed electrodes wherein the fixed electrodes include a plurality of gaps therein.

7. The method of claim 1 wherein the mechanical structure includes a plurality of anchor regions that are disposed over the substrate and in the chamber, the method further comprises forming the anchor regions wherein the anchor regions include a plurality of gaps therein.

8. The method of claim 1 wherein the mechanical structure includes a plurality of fixed electrodes and a plurality of anchor regions that are disposed over the substrate and in the chamber, the method further comprises:

forming the fixed electrodes wherein the fixed electrodes include a plurality of gaps therein:

forming the anchor regions wherein the anchor regions include a plurality of gaps therein; and

wherein sealing the chamber by depositing the thin film encapsulation structure includes:

depositing a sacrificial layer around at least a portion of the mechanical structure, including the fixed electrodes and the anchor region, and the periphery area, including the gaps therein;

depositing a first encapsulation layer over the sacrificial layer;

forming at least one vent through the first encapsulation layer to allow removal of at least a portion of the sacrificial layer;

removing at least a portion of the sacrificial layer from the mechanical structure, including from the gaps in the fixed electrodes, the anchor region and the periphery area; and

depositing a second encapsulation layer over or in the vent to seal the chamber.

9. A microelectromechanical device comprising:

a substrate;

a mechanical structure disposed over the substrate;

a periphery area disposed over the substrate, wherein the periphery area includes a plurality of gaps therein;

a thin film encapsulation structure, disposed over the mechanical structure and the periphery area, to partially define and seal a chamber.

10. The device of claim 9 wherein the thin film encapsulation structure includes first and second encapsulation layers.

11. The device of claim 10 wherein the first encapsulation layer is comprised of polycrystalline silicon, porous polycrystalline silicon, amorphous silicon, silicon carbide, silicon nitride, silicon/germanium, germanium, or gallium arsenide.

12. The device of claim 10 wherein the second encapsulation layer is comprised of polycrystalline silicon, porous polycrystalline silicon, amorphous silicon, germanium, silicon/germanium, gallium arsenide, or silicon carbide.

13. The device of claim 9 wherein the mechanical structure includes plurality of fixed electrodes, wherein the fixed electrodes include a plurality of gaps therein.

14. The device of claim 9 wherein the mechanical structure includes plurality of anchor regions, wherein the anchor regions include a plurality of gaps therein.

15. The device of claim 9 wherein the mechanical structure is a resonator including at least one fixed electrode, and anchor region, and at least one moveable electrode that is physically connected to an anchor region and adjacent to the fixed electrode, and wherein the fixed electrode and the anchor region include a plurality of gaps.

16. A microelectromechanical device comprising:

a substrate;

a mechanical structure disposed over the substrate wherein the mechanical structure includes moveable and fixed electrodes;

a periphery area disposed over the substrate;

a getter area, disposed in predetermined portions of the periphery area and the fixed electrodes;

a chamber, wherein the mechanical structure, periphery area and the getter area are at least partially disposed in the chamber and wherein the getter area is exposed to fluid in the chamber; and

a thin film encapsulation structure, disposed over the mechanical structure, the periphery area and the getter area, wherein the encapsulation seals the chamber.

17. The device of claim 16 wherein the getter area includes gaps in portions of the periphery area and the fixed electrodes.

18. The device of claim 16 wherein the getter area is capable of capturing impurities, atoms or molecules that are out-gassed from materials contained within the chamber.

19. The device of claim 16 wherein the mechanical structure is a resonator.

20. The device of claim 19 wherein the thin film encapsulation structure includes first and second encapsulation layers.

21. The device of claim 20 wherein the first encapsulation layer is comprised of polycrystalline silicon, porous polycrystalline silicon, amorphous silicon, silicon carbide, silicon nitride, silicon/germanium, germanium, or gallium arsenide.

22. The device of claim 20 wherein the second encapsulation layer is comprised of polycrystalline silicon, porous polycrystalline silicon, amorphous silicon, germanium, silicon/germanium, gallium arsenide, or silicon carbide.